AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings of claims in the application:

Claim 1 (Currently Amended): A device for a thermal decomposition of a volatile compound, and deposition of particles which are formed by said decomposition, comprising:

(a) a pressure vessel,

(b) at least one reaction tube located inside said pressure vessel such that,

an open end of said reaction tube extends into the pressure vessel and

an other end of said reaction tube is located outside the pressure vessel and is provided with a gas feed,

wherein a longitudinal axis of the reaction tube is oriented in the direction of gravity and parallel to a longitudinal axis of the pressure vessel, ~~and~~

wherein the reaction tube can be heated on a gas inlet side and cooled on a gas outlet side,

wherein the pressure vessel, in its lower part, comprises a collection cone,

wherein the open end of the at least one reaction tube extends into a gas space of the collection cone,

wherein the collection cone is connected to an outlet lock for particles, and

(c) a gas outlet unit located mainly inside said pressure vessel, said gas outlet unit comprising

a gas guide,

a gas inlet region,

wherein the gas inlet region is in communication with the gas space of the collection cone,

a filter system, and

a gas outlet, which is located outside the pressure vessel; and

wherein said gas outlet unit has a longitudinal axis which is oriented in the direction of gravity and parallel to said longitudinal axis of said pressure vessel; and

wherein said reaction tube and said gas outlet unit are located on opposite sides of said longitudinal axis of said pressure vessel.

Claim 2 (Previously Presented): The device as claimed in claim 1, wherein the outer walls of the pressure vessel are coolable.

Claim 3 (Previously Presented): The device as claimed in claim 1, wherein the at least one reaction tube has a length of from 60 to 700 cm.

Claim 4 (Previously Presented): The device as claimed in claim 1, wherein the at least one reaction tube has a diameter of from 30 to 400 mm.

Claim 5 (Previously Presented): The device as claimed in claim 1, wherein the at least one reaction tube comprises a material selected from the group consisting of metal, silicon nitride, silicon carbide, Si-infiltrated silicon carbide, and quartz glass.

Claim 6 (Previously Presented): The device as claimed claim 1, wherein the at least one reaction tube is sheathed by an electrical resistance heating means on the gas inlet side.

Claim 7 (Previously Presented): The device as claimed in claim 1, wherein the at least one reaction tube is surrounded by a cooling unit toward its open side.

Claim 8 (Previously Presented): The device as claimed in claim 1, wherein the at least one reaction tube can be heated over 30 to 70% of its length.

Claim 9 (Previously Presented): The device as claimed in claim 1, which comprises from 2 to 36 reaction tubes.

Claim 10 (Previously Presented): The device as claimed in claim 1, wherein the outlet lock comprises a double-flap system.

Claim 11 (Previously Presented): The device as claimed in claim 1, wherein the filter system comprises one or more filter candles.

Claim 12 (Original): The device as claimed in claim 11, wherein the one or more filter candles comprise a material selected from the group consisting of sintered metal, ceramic, fibers and plastic.

Claim 13 (Previously Presented): The device as claimed in claim 1, wherein the at least one reaction tube and the gas outlet unit are connected to the pressure vessel by water-cooled steel flanges.

Claim 14 (Previously Presented): A process for a thermal decomposition of at least one volatile, thermally decomposable compound and deposition of particles formed by said decomposition, using the device as claimed in claim 1, said process comprising:

heating the at least one reaction tube, on the inlet side, to a temperature greater than or

equal to the decomposition temperature of the volatile, thermally decomposable compound,

cooling the lower region of the at least one reaction tube,

optionally, diluting the volatile, thermally decomposable compound with a gas or gas mixture,

feeding the volatile, thermally decomposable compound into the at least one reaction tube, via the corresponding gas feed,

decomposing the volatile, thermally decomposable compound to form the particles and at least one gas,

gathering the particles in the collection cone, and

discharging the gathered particles via the outlet lock unit for the particles,

wherein the at least one gas formed during the decomposition reaction is discharged via the gas outlet, with the pressure in the pressure vessel being kept substantially constant.

Claim 15 (Previously Presented): The process as claimed in claim 14, wherein the inlet side of the at least one reactor is heated to a temperature which is above the decomposition temperature of a substrate.

Claim 16 (Previously Presented): The process as claimed in claim 14, wherein the lower region of the at least one reaction tube is cooled to a temperature of $\leq 100°C$.

Claim 17 (Previously Presented): The process as claimed in claim 14, wherein monosilane, undiluted, is fed to the at least one reaction tube.

Claim 18 (Previously Presented): The process as claimed in claim 17, wherein the particles are a high-purity silicon powder, and wherein the particles are discharged from the

collection cone in batches via the outlet lock.

Claim 19 (Previously Presented): The process of claim 15, wherein the volatile thermally decomposable compound is SiH_4, and wherein the temperature is from 800 to 1100°C.

Claim 20 (Previously Presented): The process of claim 14, comprising diluting the volatile, thermally decomposable compound with a gas or gas mixture, wherein the gas or gas mixture comprises hydrogen.